Engineering

HEAVY METAL CONTAMINATION IN THE BROWNFIELD SOILS OF NORTHWEST INDIANA, Zuhdi Y. Aljobeh*, Aaron M. Frank, Jonn R. Kusch, Civil Engineering Department, Valparaiso University, Valparaiso, IN 46383, Zuhdi.Aljobeh@valpo.edu

The results of a survey of heavy metal contamination at three Northwest Indiana brownfields are presented. The soil screening survey was performed by collecting and analyzing composite soil samples from the three-brownfield sites to develop a better understanding of the nature and extent of heavy metal contamination at brownfields in Northwest Indiana. The composite samples were made up of five to seven smaller samplings from within a designated area at each of the sites, with each site divided into two or three sub areas. One to two kilograms were taken from the top six inches of soil in bare areas or areas with sparse vegetation. Heavy Metals were extracted using a 24-hour, 1 N hydrochloric acid extraction procedure. The filtered extractions were analyzed for cadmium, lead, copper, and zinc using a Flame Atomic Absorption spectrophotometer model GBC932. Results from the extractions were compared to background levels to determine the level of anthropogenic contamination at the tested sites. The results indicated that the three-brownfield sites studied yield soil heavy metal burdens above remediation triggers for residential soils as specified by the Indiana Department of Environmental Management (IDEM). It should be emphasized that these results represent only a screening of each site. A more detailed analysis would be required to quantify the extent of any contamination. The results also indicate that brownfield redevelopment initiatives should proceed with caution.